

Wildlife Habitat in Riparian Forest Buffers (Supplement to Job Sheet 391)

USDA – NATURAL RESOURCES CONSERVATION SERVICE – NORTH CAROLINA



Photo courtesy of Ken Taylor, North Carolina Wildlife Resources Commission.



Photo courtesy of Craig Engelhard, USDA, Natural Resources Conservation Service.

Riparian forest buffers can provide habitat for a tremendous number of wild animals - from big game, to owls and songbirds, turtles, frogs, and insects. All of these creatures and many more may find a place to feed, nest, or breed in the riparian forest ecosystem. The forest buffer's benefits may also extend to the fin fish, shellfish, and invertebrates that inhabit the adjoining water. In order to maximize their benefit for wildlife, riparian forest buffers should have a transition zone of shrubs established between the woody and herbaceous zones. Please refer to Practice Standard 645 (Upland Wildlife Habitat Management) or the Supplement to Job Sheet 386 (Developing Wildlife Habitat in Field Borders) for information on establishing herbaceous zones for wildlife.

This job sheet will help you design a riparian forest buffer that provides optimum wildlife habitat. We suggest considering the following management practices:

- ✓ Select trees and shrubs that provide excellent food and shelter resources for wildlife.
- ✓ To manage and maintain healthy vegetation, use fencing to control livestock access to the buffer.
- ✓ Plant several different kinds of trees and shrubs. Select compatible trees and shrubs and plant them in random combinations, alternating rows, or small blocks of a single kind.
- ✓ Manage pines for sawtimber. Schedule periodic thinning to maintain a basal area of 80 sq. ft. per acre or less. Use prescribed fire to further enhance habitat in pine zones (only on non-hydric soils).
- ✓ Manage hardwoods by group selection or small patch clear-cuts for high value, mature timber. Conduct timber stand improvement removal of trees that compete with desirable fruit or seed producing trees.
- ✓ Space regeneration cuts widely to preserve larger blocks of mature forest habitat.
- ✓ Preserve dead trees (snags) that do not pose a safety hazard to provide nest cavities and forage for insect eaters.
- ✓ Shrub dominated riparian buffers may be preferable for landowners who wish to manage early succession wildlife species.

Trees for Wildlife	Examples of Wildlife Benefited	Cultural Notes
Green ash	Wild turkey, wood duck, cardinal	Prefers moist sites but will survive on dry sites
Bald cypress	Wood duck, black bear, nuthatch	Large trees which do best in pure stands
Flowering dogwood	Bobwhite quail, gray squirrel, bluebird	This tree produces best in partial shade on moist sites
Hackberry or sugarberry	Wild turkey, bobwhite quail, hermit thrush	Best growth on rich moist soils, fruit ripens in September and October
Atlantic white cedar	Black bear, wood duck, cedar waxwing	Grows best in pure stands on very wet sites, will not survive under dense cover
Mulberry	Opossum, gray squirrel, oriole	Fruit ripens in late spring
Overcup oak	Wild turkey, white-tailed deer, barred owl	Fruit matures in one season, will grow in the poorest of bottomland sites
Persimmon	Raccoon, white-tailed deer, gray fox	Will grow in sunny and both moist and dry sites, fruit ripens in the autumn
Pines	Gray squirrel, bobwhite quail, pine warbler	Depending on the species, pines can grow from moist to very dry sites
Southern red oak	White-tailed deer, wild turkey, woodpecker	Will grow on well drained sites, fruit produced at 2 year intervals
Swamp chestnut oak	Wood duck, black bear, raccoon	Fruit matures in one season, prefers moist sites
Tupelo gum (Water tupelo)	Black bear, wood duck, wild turkey	Prefers wet sites, fruit matures in early autumn
Water oak	Gray squirrel, wood duck, blue jay	Prefers moist or wet soils, fruit produced at 2 year intervals
Willow oak	White-tailed deer, wood duck, chipmunk	Prefers moist soils, fruit produced at 2 year intervals

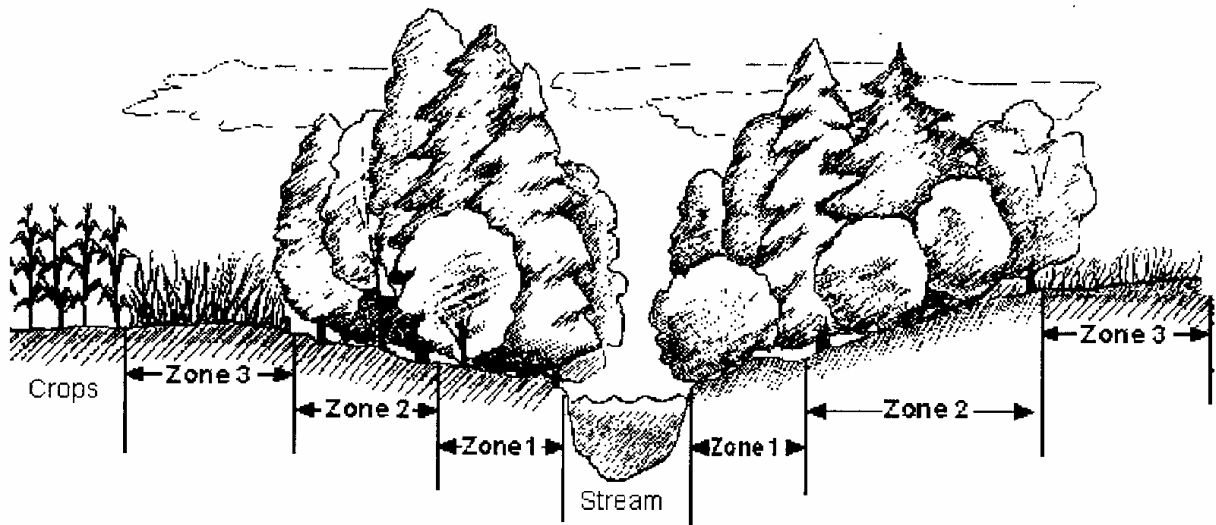
- ✓ Tree stocking rates are not specified in this supplement. Establishment at lower stocking rates will provide desirable habitat diversity as the stand matures.
- ✓ Trees and shrubs may be purchased from nurseries as bareroot and container grown stock. Order plants in spring or summer to ensure best availability. The local Soil & Water Conservation District can provide a list of suppliers.
- ✓ If any existing sod (especially fescue) is present where trees and shrubs are to be planted, it should be killed, if the original purpose of the practice is not compromised. If not possible to kill all of the sod initially, a minimum four foot wide strip (or a four foot diameter circle) should be killed where

trees and shrubs are to be planted. This will enable the new plantings to better compete for light and moisture. Fertilizer is not necessary for new plantings - its application may only boost weed growth.

- ✓ Planting stock must be protected from drying out and warm temperatures. The grower may provide care and handling instructions with your order, if requested. Planting is recommended to take place between 1 November and 15 March.
- ✓ Tree shelters may be used to protect tender trees and shrubs from deer, rabbits, and other species.
- ✓ Site conditions such as soil, drainage, and exposure to sunlight will determine which plants are best suited to grow on your site. Consult the local office of the North Carolina Division of Forest Resources for expert assistance on tree selection and establishment.

Shrubs	Spacing	Examples of Wildlife Benefited	Cultural Notes
Blueberry	4 – 6'	Black bear, raccoon, bluebird	Adaptable to most soils with adequate drainage. Best in full sun.
Chinquapin	8 – 10'	Wild turkey, gray squirrel, chipmunk	Small tree, like chestnut. Good for dry sites, full sun.
Crabapple	10 – 12'	White-tailed deer, gray fox, mockingbird	Small tree. Needs good drainage, full sun.
Elderberry	10 – 12'	Bobwhite quail, white-tailed deer, cardinal	Small tree or shrub. Likes moisture and full sun, but tolerant of shade.
Hawthorn	10 – 15'	Wood duck, wild turkey, sparrows	Small thorny tree or shrub with crabapple-like fruit. Plant in full sun.
Hazelnut	8 – 10'	Gray squirrel, white-tailed deer, chipmunk	Large thicket forming shrub with edible nuts. Good riparian plant.
Holly (American, Inkberry, Winterberry, Yaupon, etc.- all have worth)	8 – 10'	Wild turkey, bluebird, robin	Adaptable. Evergreen and deciduous varieties. Excellent riparian plants. Shade tolerant.
Plum, Chickasaw	2 – 4'	Bobwhite quail, gray fox, blue jay	Thicket forming shrub. Good for dry sites with full sun.
Silky Dogwood	8 – 10'	Wood duck, cottontail rabbit, brown thrasher	Tolerates wetness. Good riparian plant.
Shrub Lespedeza (plants)	2 – 4'	Bobwhite quail, white-tailed deer, juncos	VA-70 or Bicolor. Needs good drainage & periodic mowing.
Sumac	4 – 6'	Cottontail rabbit, wild turkey, bobwhite quail	Prefers well-drained sites, full sun.
Viburnum	4 – 6'	White-tailed deer, wild turkey, cedar waxwing	Very attractive. Prefers moist shady side of riparian buffer.
Wax Myrtle	8 – 10'	Wild turkey, bobwhite quail, towhee	Evergreen. Adaptable to wide ranges of moisture and light conditions.

- Shrub zones added to forested or grassy buffers help balance the seasonal availability of wildlife foods. Some shrubs produce ripe food in summer and fall. Others provide winter food resources providing edible fruit, seeds, buds, twigs, and bark.
- Evergreen shrub zones provide valuable winter cover. Thicket forming and thorny shrubs provide safe refuges for nesting and perching.
- Patches of different shrubs increase the diversity of wildlife food and cover resources. Any of the listed shrub species could be combined in a buffer planting.
- During early establishment, shrub plantings must be protected from shading from overstory trees, fire, disking, accidental mowing, herbicides, and browsing wildlife.



Cross-section of a three-zone riparian forest buffer.

Zones 1 and 2 should follow NRCS, North Carolina Practice Standard 391 with species selected that will benefit wildlife (see attached species list). Zone 3 is simply a field border or filter strip designed for maximum wildlife benefits. An example of a good species mix would include loblolly pine, wax myrtle, green ash, persimmon, and flowering dogwood. Eventually, the ash and pine will form a closed canopy over the stream, while the smaller trees and shrubs add a diversity of food sources and places to nest.

Additional information is available from your local NRCS office, North Carolina Cooperative Extension Service, North Carolina Wildlife Resources Commission, and various conservation organizations.

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